# GTI Series Inverters User Manual

## System Function

- **directly connected to the solar panels (do not need to connect the battery)**

  Using precise MPPT function, APL functions, the inverter automatically adjust the solar panels of maximum output power,  simply connect the solar panel to the grid inverters. Do not need to connect the battery.

- **AC 0 angle with high precision auto-detection**

  AC phase angle of 0 through isolation amplifier then input to the MCU for high-precision detection and analysis. The phase shift rate is less than 1%, thus achieve high-precision with phase modulation AC output together.

  **Synchronous High-frequency Modulation**

  In the process of the grid, usually adapt the same phase angle in parallel. (ie, When the two-phase alternating current total is equal to 0.Use switch to combination the two AC fusion) and the product is rectified AC half-frequency AC to 100Hz first, then the machine use the high

frequency current in the circuit and semi-100Hz frequency alternating current generated combination, to achieve high-frequency modulation.

**Pure Sine Wave Output**

Use SPWM directly to make pure sine wave output.

- **Automatic Sensing Function Solar Luminosity**

Uses the latest luminosity perception operation technology. The different illuminated angles and intensity of the solar panels will produce different current output. Uses advanced CPU to operate different illuminations and the data can be directly displayed on the LCD. Then you can visually see the sense of the strength of the sun unit. Used more convenient.

**Power Automatically Locked (APL)**

In different current fluctuations, we should use the MPPT function. When the MPPT function adjusted to the maximum power point, the product automatically powers locked in maximum power point, then made the output power more stable.

**Maximum Power Point Tracking (MPPT)**

Because the current intensity and the voltage changes at any time, if there is no power point tracking, there will be a lot of problems. In the past time, usually adopt a solar controller, but this product uses high-precision MPPT operation power, automatic and immediate adjust the solar panels output power at the maximum output point, then achieve a stable output purposes.

**Automatically Adapt To Different Load Power Factor**

Adapt to any of the power load.

- **Constant Current, Constant Power**

This product is constant current, constant output power, without any overload, over-current phenomenon.

- **Automatically Shut Down When The Power Output Of a Fault**

When the city power system is in failure, the inverter will automatically turn off the output.

**Current Limit Protection**

Current limit

- **Stack Multiple Machines**
- **Multiple small power inverters in parallel can achieve large output power.**
- **High-Frequency High Conversion Rate**

Adapt high frequency converter, the output more efficient.

## Parameter Table

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grid-series models | 200W | 300W | 400W | 500W | 600W | 800W | 1000W |
| Recommend use solar panels | 320Wp | 420Wp | 520Wp | 620Wp | 720Wp | 1050Wp | 1250Wp |
| DC Maximum Input Power | 300W | 400W | 500W | 600W | 700W | 900W | 1200W |
| DC maximum voltage | VpvDC30.2VDC | | | | | | |
| DC voltage range<br>Maximum output power factor | Vpv 10.5V~28VDC<br>99% | | | | | | |
| Maximum input current | 15A | 20A | 25A | 30A | 40A | 45A | 65A |
| AC output power | 200W | 300W | 400W | 500W | 600W | 800W | 1000W |
| AC maximum output power | 200W | 300W | 400W | 500W | 600W | 1000W | |
| Anti-voltage protection | Fuse | | | | | | |
| AC standard voltage range | 90V-140/180~260VAC | | | | | | |
| AC frequency range | 55Hz~63Hz/ 45Hz-53Hz | | | | | | |
| Output current total<br><br>harmonic distortion | THDIAC <5% | | | | | | |
| Phase | <1% | | | | | | |
| Islanding protection | VAC;f AC | | | | | | |
| Output short circuit protection | Current-limiting | | | | | | |
| Show | LED | | | | | | |
| Installation | Wall hanging | | | | | | |
| Cooling | Fan | | | | | | |
| Standby Power | <2W | | | | | | |
| Night Power | <1W | | | | | | |
| Ambient temperature range | -25 ℃~60℃ | | | | | | |
| Humidity | 0~99%(Indoor Type Design) | | | | | | |

| | |
|---|---|
| Waterproof | Indoor Type Design |
| Electromagnetic Compatibility | EN50081.part1 EN50082.part1 |
| Power System Disturbance | EN61000-3-2 EN60950-1 |
| Network test | DIN VDE 1026 |

## Packing and weight

| | | | |
|---|---|---|---|
| N．W | 0.77kg（200-300W） | 1.3kg(400—600W) | 2.0kg(800—1000W) |
| G．W | 1.15kg（200—300W） | 1.8kg(400—600W) | 2.5kg(800—1000W) |
| Size (L x W x H) | 18.7 x 12.6 x 5.1 cm | 21 x 16.5 x 5.3cm | 31 x 16.5 x 5.5cm |
| Packing (L x W x H) cm | Inner box: 27x19.3 x 9.5<br>Outer box: 49x28.5x 41.5 | Inner box: 30x20.3x11.3<br>Outer box: 42x31.5x36.5 | Inner box: 39 x 20.3 x 11.3<br>Outer box: 42x31.5x36.5 |
| AC Power Cord | 1.8 m | | |

## User Guide

### 1、Installation Connection

1、Red terminal: Connect DC positive, black terminal: Connect DC negative. Show in Figure 1.

2、AC socket: Connect to the mains. Put the side of the AC cord which has holes into the inverter with 3 foot outlet and the other side of the AC cord to home 3PIN AC outlet.  Show in Figure 2.

Figure 2

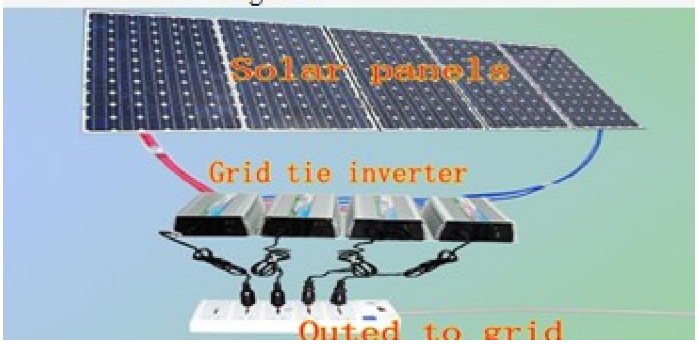
Figure 3

3、Switch: Connect the connections in right way, then turn on the switch. The inverter starts to work. Show in Figure 3

## 2、Stack using

In order to achieve higher power use requirements, this product can be stacked, such as: 4 grid inverter1000W stacking can achieve 4000W.And the number of the stacking is unlimited. Used as shown in Figure 4:

Figure 4




## 3、Input and output

### 1、DC input limit

✧ Input voltage range: 10.5V to 28V

Solar Panel: Recommend using the power more than 30W and the standard voltage of 17.5V PV panel.

Recommend using multiple solar panels. Solar panel in series will result in high-input voltage which will exceed the working voltage range of the inverter.

Wind turbine system: Rated voltage 24VDC, maximum voltage 28VDC.

**2、AC output：**

✧ Voltage range of the inverter whose output is 220V AC.: 180V - 260V

✧ Voltage range of the inverter whose output is 110V AC.: 90V - 140V

## 4、LED Indicator：

**1、Red LED：**

1、Low-voltage protection (input DC voltage is less than 10.5VDC).

2、Over-voltage protection (Input DC voltage is greater than 28.5VDC).

3、Over-temperature protection (when the chassis temperature is above 75℃,

the temperature dropped about 2-10 minutes to restart automatically after cooling).

4、Fault Protection (when 110VAC or 220VAC power outage or shutdown).

5、Islanding protection: When the electric supply stop, the inverter automatically shut down output.

**2、Green LED：**

1、Green LED flashing: The inverter is adjusting power output. MPPT is in working condition.

2、Green LED long in time: The inverter is in working condition with the maximum output power.

## Notes

---Please pay attention of the voltage when use the product. The voltage is from 10.5—28V, if is not these voltage the product may be damaged.

---Non-professionals do not disassemble. Only qualified personnel may repair this product.

---Please install inverter in the low humidity and well-ventilated place to avoid the inverter over-heating, and clear around the inflammable and explosive materials.

---When using this product, avoid children touching, playing, to avoid electric shock.

---Recommended Maximum DC input 4AWG cable capable of handling more than 50A of the cable size.

---Optimal length of the DC input line 8M or less, long cable will allow solar panels to the inverter

DC voltage drop caused by wear and tear.

---Connected to a power outlet to provide AC.

---Connected solar panels, battery DC input power supply cable.

**Accessories for product**

One standard AC wire

One user manual